



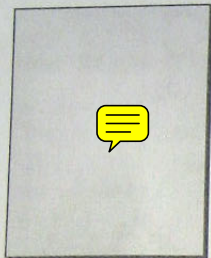
I have found so much fun, with all the groups of people.
"...sentence..."

PIONEER

PETER KIRSTEIN

-TITLE-

ARPANET PIONEER.

Interviewed on October 21st 2006 in BRENTWOOD, LONDON (UK)

Born in [DATE] in [PLACE]

20 JUNE 1933 Berlin DE. I left when I was 3 y.o. (w/old) W/...

Studies and Brief CV

1951-54 CAMBRIDGE (Then I spent 9 months in UCLA)

I came back to Cambridge.

51 and 52 summer jobs for the ARMY.

1957 - PhD From Stanford - EE.

4 years General Electric ZURICH.

1967 Univ. of London. A lot of transatlantic experience.

E-mail addressLinks related to youNPL switch
never outside
them.

Do you remember when you had your first contact with a computer?

- 1951 What's a computer - UCLA mechanical differential analyzer. 100 m.
I saw SWEC → South Eastern Automatic Computer
- EDSAC - From Cambridge very powerful.
- 1954 Stanford 19 words IBM 605 - most powerful and the 1st used for me.

What was your first contact/experience with Internet or ARPANET?

- 1965/66 Visiting UCLA. A graduate student (named Vint Cerf) they have
IBM 360/40 as front end. That was going to be a network. First time you put a front end behind a host.
I saw the beginning of the ARPANET → Bob Kahn was there (for BBN)

In your opinion, what are the key characteristics of Internet?

and I was asking him. He was the systems designer

In OCTOBER 1971 → I talked about the european conference

We would connect COMPUTERS remotely. Small ones PDP-9 with IBM 360/40 one side connecting with ARPANET style and the

Maps → Oct/Nov 1973.

others using the IBM terminals protocol.
Took almost two years to implement.

Larry Roberts offered me an IMP.

Then NSF - The chair wrote to the Dir of ARPA and then to Larry Roberts. Who got upset for the surprise.

It didn't get approved but no case

1971 5000£ from Donald Davies (NPL).

1973 The actual TIP arrived (50,000\$)

Between the 1971-73 they introduced Value

I got a bill of 5K pounds all my money. I appealed but turn down by the Treasury. Only politically thing could stop. Contacted

Free of TAX and duty → ALL.

With the net 10 years our group ran international services

1975 → had SATNet

SATNet.
Thought in
1972.

And Kahn
gave a contract
to BBN.

Centralised research network based on IBM 360.

And another CDC centralised network London.

And another based in Cambridge.

I connected all them together.

Germany.
Italy.
Canada.
Norway.

DNS

ANECDOTAL

Kirsten @ UK.AC.UCS

I tried to convince to everybody to do it as americans.

1986 or 87 worked well. Until the DISASTER came with Czechoslovakia (C) → We couldn't do that anymore.

1990/1 → They reversed the Domains. British → 1920's they decided (GB) was our label. But I thought (UK) (GB + Not Ireland)

Jan Postel → Was so upset because we had two domains.

(GB) - OSI
(UK) - TCP/IP > One proposal but we refused.

(UK) Was the first domain to get out of USA.

(GB) 3 or 4 years later.



What do you consider the most important milestones in the development of the network?

- 1974 Concept of having completely diff. networks at some level to work together.
- 1978-2003 I ran DARPA contracts. (Larry Roberts, Carl Kahn, Mockapetris...)
- 1978-1983 Putting the ideas into practice. Introduction of TCP (1983)
- 1983 DNS → big
- 1991-1992 Winning the Protocol Wars. [2001] IPv6 Is a good idea.

How did you contribute to the development of the Internet?

Developing it to a real user community in the UK (independence de ~~France~~ ITALY, GERMANY, NORWAY)
 they didn't make compatible what the US did with what was happening in the country.
 It kept the US more open. 10 More international in this network.
 1983-2003 I ran the ICB (Canada, Germany, Netherlands, NATO, Norway and Denmark) ← IAB + ICB (Vint'82)
 Bringing UK to new multimedia projects. Developing the first

Who are some key people in the development of Internet, leaders or trendsetters?

Bob Kahn first of all.
 Vint Cerf clearly.
 Jon Postel.
 Underated: DAVE MILLS (break the monopoly of gateways, putting FUZZ BALLS).
 PETER HIGGINSON (UK) Did much of the early work at UK. Left my group in 1976.
 STEVE KILLE
 DEREK BARBER & DONALD DAVIES → NPL Net (in a house) only funding for that.
 PAUL MOCKAPETRIS.
 JIM MATTHIS (on the radio set).
 JEANNY STRATIZAR
 FRANK HEART → Great for the switch (packet sw) but not for Internet.
 LEN BUSACK → (Founder of CISCO) We had the first center in Europe.
 BOB METCALFE
 MARRIS WILKS → With CAMBRIDGE RING (precursor of token ring).
 STEVE KENT - A lot for security.
 J.C. LICKLIDER Thinking broadly about files.
 BERNERS-LEE - you can't do anything.
 KIMBERLY Merrett (UCSD)

Two anecdotal situations

(OK) See Reverse

What do you think about the future of Internet?

- Very interesting in watching its impact on areas that hasn't expected yet. Now the history repeats the problems we had in 70's and 80's in UK/Norway to later in Europe and in 2006 are in ASIA or AFRICA. That there's no internal funding.
- If IPv6 comes properly it will have a major impact on services.
- Speed is obvious.

Do you see any technological trends?

- Circuit Switching → Will disappear in the short/medium.
- A lot of management in the telecoms industry but all related to Internet.

Fiber you will take over in main places.
 Faster switches
 SAT will continue in Asia central. Fiber to the main cities.

ADDITIONAL READING

PAPERS & BOOKS MENTIONED / RECOMMENDED

- (EX: Stephen Segaller 1998. "Nerds 2.0.1 A brief history of the Internet" ISBN 1-57500-106-3
 TV Books LLC, (New York. 1998) . 399 pages)

After many years GOVERNMENT
 1974 I [] a political committee: Post office.
 (Minist of Defense)

FILE TRANSFER in the ARPANet was interactive.
 In the British side and system (coloured books) of European projects we had a batch system.

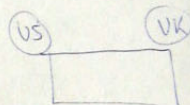
[] Mainly in SATnet and voice activity.

1977 - Packet SW service EPSS

1979 SATnet started being a service and not an experiment.

SECOND ANECDOTE

1979/80 They accessed me to put an
 Access control and Accounting.
 I was given a 48Kbps one direction



[] 64 Kbps SATnet both ways.

So I decided to put all the traffic through the free line.

I sent a message to all the people I knew for the last 3 months but then we got emails from many people asking why I wanted to block their email. And from other countries.

International Communications where not allowed by the PTT.

CMARS

Diff. tech. of access.

Diff. Appl. tech drove that level. If you want to make it more efficient (putting QoS signalling) you break this universality. Thanks to bandwidth we can make it more efficient.

The big SCALABILITY from the experiments in 1975 to today is incredible.
 New protocols had found to easy adjust is
 There are many ways to do security but this is making not to implement any

Larry thought that the 4 Washington - ~~over~~ July 1973

1975 everything changed with the SATnet. SATs Gurney then Gurney then undersea cable to Norway.

The fact that it didn't take much money (an extra IMP) was the flick to put this IMPs.